

IN THE CLAIMS

1-14. (Canceled)

15. (Currently amended) A nuclear fuel rod for a boiling water nuclear reactor, comprising:

a cladding tube, defining a closed inner space and a surface and which is manufactured from at least one of the materials in the group zirconium and a zirconium-based alloy;

a plurality of nuclear fuel pellets, arranged in the inner space in the cladding tube so that the nuclear fuel pellets fill part of the inner space;

an initial fill gas arranged in the closed inner space in order to fill the rest of the inner space;

a layer of carbon monoxide provided by the initial fill gas, the layer blocking sites at which hydrogen is adsorbed on the surface of the inner space;

whereby the initial fill gas contains a proportion of inert gas and a proportion of carbon monoxide; and wherein

the internal pressure (P_{fill}) of the initial fill gas in the nuclear fuel rod amounts to at least 2 bar (abs) at room temperature (T_R) and the proportion of carbon monoxide is at least 4 volume per cent of the initial fill gas; and

wherein the cladding tube has an inner surface that faces the inner space and the material in the cladding tube nearest the inner surface is pre-oxidized to provide a surface layer that comprises zirconium oxide.

16. (Canceled)

17. (Previously presented) A nuclear fuel rod according to claim 16, wherein the proportion of carbon monoxide constitutes at least 5 volume per cent of the initial fill gas.

18. (Previously presented) A nuclear fuel rod according to claim 17, wherein the proportion of carbon monoxide constitutes at least 6 volume per cent of the initial fill gas.

19-23. (Canceled)

24. (Previously presented) A nuclear fuel rod according to claim 15, wherein the inert gas consists substantially of helium.

25. (Currently amended) A nuclear fuel assembly for a boiling water nuclear reactor, said nuclear fuel assembly comprising a plurality of nuclear fuel rods, each fuel rod including:

a cladding tube, defining a closed inner space and a surface and which is manufactured from at least one of the materials in the group zirconium and a zirconium-based alloy;

a plurality of nuclear fuel pellets, arranged in the inner space in the cladding tube so that the nuclear fuel pellets fill part of the inner space;

an initial fill gas arranged in the closed inner space in order to fill the rest of the inner space;

a layer of carbon monoxide provided by the initial fill gas, the layer blocking sites at which hydrogen is adsorbed on the surface of the inner space;

whereby the initial fill gas contains a proportion of inert gas and a proportion of carbon monoxide; and wherein

the internal pressure (P_{fill}) of the initial fill gas in the nuclear fuel rod amounts to at least 2 bar (abs) at room temperature (T_R) and the proportion of carbon monoxide is at least 4 volume per cent of the initial fill gas; and

wherein the cladding tube has an inner surface that faces the inner space and the material in the cladding tube nearest the inner surface is pre-oxidized to provide a surface layer that comprises zirconium oxide.

26-29. (Canceled)